

Chapter E 551

TRAVEL HOMES

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E 551.01 Scope. (1) The provisions of this chapter cover the electric conductors and equipment installed within or on travel homes and also on conductors that connect them to a supply of electricity.

(a) Wherever the requirements of other chapters of the Wisconsin state electrical code and chapter E 551 differ, the requirements of chapter E 551 shall apply.

(2) A travel home not intended as a dwelling unit as for example, for use as a mobile store, an office, a schoolroom or designed for the display or demonstration of merchandise or machinery shall not be required to meet the provisions of this chapter pertaining to the number or capacity of circuits required. It shall, however, meet all other applicable requirements of this chapter if provided with an electrical installation intended to be energized from a 115 volt, AC power supply system.

(3) The provisions of this chapter apply to the electrical equipment and materials of travel homes intended for connection to a wiring system nominally rated 115 volts, 2-wire, AC, with a grounded neutral.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.02 Definitions. The following definitions apply only to the requirements of this chapter.

(1) **SUPPLY FEEDER:** That part of the electric distribution system from the supply point to the travel home service equipment.

(2) **TRAVEL HOME:** A vehicular portable structure built on a chassis, designed to be used as a temporary dwelling for travel, recreational, and vacation use; a travel type mobile home, hereafter called a "Travel Home." When factory equipped for the road, it shall have a body width not exceeding 8 feet and body length not exceeding 32 feet.

(3) **TRAVEL HOME PARK:** The location of 2 or more travel home spaces.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.03 Power supply conductors and service equipment. (1) **POWER SUPPLY CONDUCTORS.** (a) *Feeding travel home service equipment.* All supply feeders shall have ratings specified as follows:

1. A supply feeder serving one travel home service equipment shall be rated not less than 20 amperes.

2. A supply feeder serving 2, 3 or 4 sets of service equipment shall be rated not less than 40 amperes.

3. Where a supply feeder serves more than 4 sets of service equipment, figure a minimum demand of 20 amperes for each set and then apply a demand factor of 50% to the total demand to determine the minimum supply feeder ampere rating.

(b) *Feeding travel home.* The conductors between the service equipment and the travel home shall be a feeder circuit supply cord approved for the purpose rated 15 or 20 amperes, 115 volts, and shall have 3 conductors, one of which shall be identified by a continuous green color or a continuous green color with a yellow stripe. The attachment plug, connectors, and mating receptacles shall be of a 2-pole, 3-wire grounding type approved by the administrative authority. The supply cord shall not be less than 20 feet or more than 26½ feet long and shall be either separable or permanently attached.

Note: It is the policy of the administrative authority to approve grounding type attachment plugs, connectors and mating receptacles covered by American Standard C78 Attachment Plugs and Receptacles.

(c) *Separable cord set.* When a separable cord set, consisting of a cord, male and female fittings, is provided by the travel home manufacturer, the travel home shall be equipped with a permanently-mounted, approved, male recessed-type attachment plug (motor base receptacle) wired directly to the distribution panel in an approved manner by means of approved service cable. The supply end of the cord set shall be equipped with an attachment plug of the type described in subsection (1) (b).

(d) *Permanently connected power cord.* The cord shall be connected directly to the terminals of the distribution panel and provided with means to prevent strain from being transmitted to the terminals. The supply end of the cord shall be equipped with an attachment plug of the type described in subsection (1) (b).

(e) Supply cords shall be as follows:

1. 15 ampere No. 14/3 AWG for travel homes which have a single 15 ampere purpose branch circuit and gas or oil-fired heating and cooking appliances.

2. 20 ampere No. 12/3 AWG for travel homes which have a single 12 ampere general purpose branch circuit and gas or oil-fired heating and cooking appliance.

(2) **SERVICE EQUIPMENT.** The travel home service equipment shall be located adjacent to the travel home parking location and not mounted in or on the travel home. The service equipment shall consist of disconnecting means, overcurrent protective device and receptacle as specified in subsection (2) (a).

(a) Each travel home space shall be provided with a disconnecting means, overcurrent protective device and 2-pole, 3-wire grounding type receptacle, each rated not less than 20 amperes.

(b) The travel home grounding conductor shall be bonded to the system neutral conductor within the disconnecting means enclosure. See section E 551.09. A separate common grounding conductor shall be run from a grounding electrode to the disconnecting means enclosure where it shall be bonded to the system neutral and travel home grounding conductor. The grounding electrode shall always

be a metallic underground water piping system where such a piping system is available.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.04 Disconnecting means and branch circuit protective equipment. (1) The branch circuit equipment may be combined with the disconnecting means as a single assembly. Such a combination may be designated as a distribution panel.

(2) Plug fuses and fuseholders shall be tamper-resistant, type "S" enclosed in dead-front fuse panels.

(3) Disconnecting Means. (a) Disconnecting means shall be provided in each travel home and shall be approved service entrance equipment consisting of circuit-breakers or a switch and fuses and their accessories installed in a readily accessible location near the point of entrance of the supply cord or conductors into the travel home. This equipment shall contain a solderless type of grounding connector or bar for the purposes of grounding with sufficient terminals for all grounding conductors. The neutral bar termination of the grounded circuit conductors shall be insulated.

(b) The disconnecting equipment shall have a rating suitable for the connected load. Travel homes in which only a single branch circuit is installed may use a branch-circuit breaker or pull-out type of fuse-holder as disconnecting means if approved for use as service equipment.

(4) Branch circuit protective equipment. (a) Branch circuit distribution equipment shall be installed in each travel home and shall include over-current protection for each branch circuit consisting of either circuit breakers or fuses.

(b) The branch-circuit overcurrent devices shall be rated:

1. Not more than the circuit conductors; and
2. Not more than 150% of the rating of a single appliance rated 10 amperes or more.

(5) Labeling at electrical entrance. Each travel home shall have permanently affixed to the exterior skin, at or near the point of entrance of the power supply cord, a metal tag reading: "This travel home is wired for 110/125 volt AC service. Do not connect to higher voltage."

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.05 Branch circuits. (1) Travel homes with not more than 6 general appliance and receptacle outlets combined shall have not less than either:

(a) One general purpose (lighting) branch circuit, 15 amperes, No. 14 AWG circuit, to supply these outlets, or

(b) One general purpose (lighting and appliance) branch circuit, 20 amperes, No. 12 AWG circuit, to supply these outlets, provided that the total rating of fixed appliances connected to this circuit shall not exceed 5 amperes or 600 watts.

Note: Travel homes, wired in accordance with (a) and (b) shall be equipped with gas or oil-fired heating and cooking appliances.

(2) Travel homes with more than 6 general appliance and receptacle outlets combined shall have not less than:

(a) One general purpose (lighting and appliance) branch circuit, 20 amperes of No. 12 gage conductors, minimum, which shall supply current to lighting outlets and receptacles only (shall not supply receptacles in cooking and dining areas) and may supply fixed or portable appliances such as electric water heaters. The total rating of such fixed or factory installed appliances shall not exceed 9 amperes or 1,000 watts, and

(b) One appliance branch circuit, as follows: 20 amperes, No. 12 gage conductors, minimum, which shall supply current to receptacle outlets only in cooking and dining areas.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.06 Receptacle outlets. (1) All receptacle outlets: (a) shall be of the grounding type; (b) shall be installed according to Wis. Adm. Code section E 210.07; and (c) shall be of the parallel blade, 15 ampere, 125 volt type either single or duplex.

(2) There shall be an individual outlet of the grounding type for each cord-connected fixed appliance installed.

(3) Except in the bath area, receptacle outlets shall be installed at all wall spaces 2 feet wide or more, so that no point along the floor line is more than 6 feet, measured horizontally, from an outlet in that space. Except as explained in the following, receptacle outlets are not required for wall spaces that are partially or fully occupied by kitchen cabinets, wardrobes, built-in furniture, or similar facilities.

(a) In addition, a receptacle outlet shall be installed:

1. Over counter tops in the kitchen and dining area.
2. Adjacent to the refrigerator space, except when a gas-operated refrigerator containing no electrical circuit is factory installed.
3. Adjacent to a gas range space, except when a gas cooking appliance containing no electrical circuit is factory installed.
4. At counter top spaces for built-in vanities.

(4) No receptacle outlet shall be provided adjacent to a shower or bathtub.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.07 Fixtures and appliances. (1) **FIXED APPLIANCES:**

(a) All fixed appliances shall be of an approved type and shall be connected in an approved manner and securely fastened in position. (See section E 551.09 for provisions on grounding.)

(2) **LIGHTING FIXTURES.**

- (a) Pendant-type fixtures or pendant cords shall not be installed.
- (b) If a lighting fixture is provided over a bathtub or in a shower stall, it shall be of the approved enclosed and gasketed type.
- (c) Switches shall not be located inside the tub or shower space.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.08 Wiring methods and materials. Except as specifically limited in this section, the wiring methods and materials included in the Wisconsin state electrical code shall be used in travel homes.

(1) Nonmetallic outlet boxes are acceptable only with nonmetallic sheathed cable.

(2) Nonmetallic cable located 15 inches or less above the floor, if exposed, shall be protected from physical damage by covering boards,

guard strips, or conduit. Cable likely to be damaged by stowage shall be so protected in all cases.

(3) Metal-clad and nonmetallic cables may be passed through the centers of the wide side of 2 by 4 studs. However, they shall be protected where they pass through 2 by 2 studs or at other studs or frames where the cable or armor would be less than 1½ inches from the inside or outside surface. Steel plates on each side of the cable, or a tube, with not less than No. 16 manufacturer's standard gage wall thickness, are required to protect the cable. These plates or tubes shall be securely held in place. When the thickness of studs or frames make it impractical or impossible to use metal plates or tubes, particular care shall be exercised in the design and production of the travel home so as to avoid contacting the cables with nails, screws, or other fasteners, such care in design shall include appropriate routing of the cables through studs or frames at locations where the likelihood of their being contacted by nails, screws, or other fasteners subsequent to production is remote.

(4) Where metallic faceplates are used they shall be effectively grounded.

(5) Switches shall be rated as follows:

(a) For lighting circuits, switches shall have a 10-ampere, 125 volt rating; or higher, if needed for the connected load.

(b) For motors or other loads, switches shall have ampere or horsepower ratings or both adequate for loads controlled. (An "AC general use" snap switch may control a motor 2 horsepower or less with full-load current not over 80% of the switch ampere rating.)

(6) At least 4 inches of free conductor shall be left at each outlet box except where conductors are intended to loop without joints.

(7) Under chassis wiring (exposed to weather.)

(a) When outdoor or under chassis wiring is exposed to moisture and physical damage it shall be protected by rigid metal conduit or liquid-tight flexible metal conduit, except electrical metallic tubing may be used when closely routed against frames and equipment enclosures.

(b) The conductors shall be type NMC, RW, TW, or equivalent.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.09 Grounding. Grounding of both electrical and nonelectrical metal parts in a travel home is through connection to a grounding bus in the travel home distribution panel. The grounding bus is grounded through the green-colored conductor in the supply cord of the feeder wiring to the service ground in the service entrance equipment located adjacent to the travel home location. Neither the frame of the travel home nor the frame of any appliance may be connected to the neutral conductor in the travel home.

(1) **INSULATED NEUTRAL.** The ground circuit conductor (neutral) shall be insulated from the grounding conductors and from equipment enclosures and other grounded parts. The grounded (neutral) circuit terminals in the distribution panel and in counter mounted cooking units are to be insulated from the equipment enclosure. Bonding screws, straps or buses in the distribution panel or in appliances are to be removed and discarded.

(2) **EQUIPMENT GROUNDING MEANS.** (a) The green-colored grounding wire in the supply cord or permanent feeder wiring shall be connected to the grounding bus in the distribution panel or disconnecting means.

(b) The chassis shall be grounded. The grounding conductor may be solid or stranded, insulated or bare, and shall be an armored grounding conductor or routed in conduit if No. 10 AWG. The conductor, if No. 8 AWG stranded or larger, may be run without metal covering. The grounding conductor shall be connected between distribution panel grounding terminal and a terminal on the chassis. Grounding terminals shall be of the solderless type and approved as pressure terminal conductors recognized for the wire size employed. The grounding conductors shall be routed so as not to be exposed to physical damage; protection can be afforded by following the configuration of the chassis.

(c) In the electrical system, all exposed metal parts, enclosures, frames, lamp fixture canopies, etc. shall be effectively bonded to the grounding terminal or enclosure of the distribution panel.

(d) Cord-connected appliances, such as refrigerators, and the electrical system of gas ranges, shall be grounded by means of an approved cord with grounding conductor and grounding type plug.

(3) **GROUNDING OF NONCURRENT CARRYING METAL PARTS.** All major exposed metal parts that may become energized, including the water, gas, and waste plumbing, the roof and outer metallic covering, the chassis and metallic circulating air ducts, shall be effectively bonded to the grounding terminal or enclosure of the distribution panel or to the metal chassis. See subsection (2) (b).

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 551.10 Testing. Dielectric strength: The wiring of each travel home shall be capable of withstanding, without breakdown, for a period of 1 minute, the application of an alternating potential of 900 volts between live parts and noncurrent-carrying metal parts.

(1) **EXCEPTION.** Fixtures or permanently installed appliances shall not be required to withstand the dielectric test if they have been approved.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.